Quantum Leap Packaging Mil-Spec LCP air cavity packages

Quantum Leap Packaging Inc has a new line of Liquid Crystal Polymer air cavity packages which fit the JEDEC outline for 1mm parts, featuring the largest internal cavity for their size, with simplified strip-based assembly. These are offered in high-reliability lid attachment via B-stage epoxy or QLP's low-moisture UltraSeal process.

The air cavity packages applications include LEDs, SAW devices, oscillators, RF wireless and MEMS.

Applications for vision packaging include insert molded glass windows and LDMOS, and meet high-performance technical needs of electronic component packaging, giving significant costs savings over alternative approaches.

"With the development of the first hermetic LCP packages, Quantum Leap is creating an industry paradigm shift, after decades of virtual technical stagnation," says president and CTO, Mike Zimmerman.

"Customers who employ our LCP air cavity packages in place of incumbent alternatives will realise immediate and substantial cost savings with no compromise to performance. Early adaptors of this technology stand to have the edge over their competitors from a pure price/performance stance."

Quantum Leap's proprietary Liquid Crystal Polymer is claimed as a significant breakthrough when compared to previous plastic and polymer-based packages.

With an exposed pad designed to improve thermal performance, the degree and direction of the coefficient of thermal expansion (CTE) can be adapted to special heat sink materials, and a variety of semiconductor material technologies, improving the mean-time-to-failure of the assembly.

Superior high-frequency performance is achieved, due to the dielectric constant and loss properties of LCP, lower than conventional materials.

The structural properties of LCP allow thin-wall construction, providing more area inside the air cavity package for active and passive components, while maintaining the industry standard 'footprints' common to both ceramic and metal packages.

Quantum Leap's air cavity packages feature the largest internal cavity on a size proportional basis.

Lid attachment is by QLP's ultrasonic UltraSeal, which produces a hermetic seal in less than 2 secs, an improvement over the 1hr cure cycle required by epoxy.

Available in strip form, automated assembly is facilitated, lowering costs.

QLP's Ultraseal process is also claimed to be stronger than epoxy methods, eliminating the problem of epoxy flow and out-gasing, which adversely affects reliability. Sample quantities are available in August 2004.

Contact: sales@qlpkg.com

HBT driver power amplifiers

RFMD has launched its multi-band RF3800 series of GaAs HBT driver PA's for cellular base-station infrastructure applications, which provides higher breakdown voltage for better output power, efficiency and linearity.

The RF3800, RF3802 and RF3805 are assembled in an aluminum nitride package, providing robust operation and give claimed cost savings of more than 30%.

Infrastructure product group VP at RF Micro Devices, Jeff Shealy, says the development has been "In response to significant customer interest. We are now sampling these best-in-class driver power amplifiers to leading infrastructure OEMs."

The RF3800 series provides up to +37dBm of output power (P1dB), high power efficiency (greater than 35% at P1dB), high linearity (+50dBm OIP3) and higher gain (14 to 20dB) under linear class AB operation and sell for under $10/5000 quantities.

Anadigics' protective clamping circuit

Anadigics has been granted US patent no. 6,580,321 for a new active clamping circuit that protects GSM power amplifiers (PAs) from damage under extreme operating conditions. The new clamping circuit is simpler than previous designs, taking up less board real estate.

"This active clamping circuit is simple and compact, yet protects PAs by reducing the gain of the amplifier when output voltage becomes too high," says Dr Charles Huang, executive VP and CTO. "This patent provides an example of how we are continuing to develop innovative technology to strengthen our portfolio of power amplifier solutions."

Anadigics has a portfolio of over 30 patents, which has fuelled many technologically innovative products. Products for wireless handsets include quad band GSM PAs; a family of High-Efficiency-at-Low-Power (HELP) CDMA PAs, reducing handset power consumption by 50% with efficiency of 20% at 16dBms against a claimed 8-10% from competitor's products.

RF for aerospace & defence

Sirenza Microdevices Inc has introduced a variety of RF components, expanding its aerospace and defence product offering of high-performance, high-frequency signal processing components

These include: DC-20 GHz InP HBT gain blocks; DC-3500 MHz mixer family; frequency multipliers and dividers; narrow band and broadband VCOs operating up to X band; 20-100GHz double balanced Schottky diode mixer family and 2-16GHz, ¼W distributed amplifiers.

Showcased at the IEEE-MTTS Symposium and Exhibition, "We received very positive response from the aerospace and defence engineering community with the unveiling of these new products," says Skip Hoover, GM of Sirenza's aerospace & defense business unit.

"Our product team was pleased that this line expansion appears to be on the mark, based on feedback we received from a wide range of potential customers."